DOCUMENT RESUME

ED 184 087 CS 005 335

AUTHOR McKenna, Michael C., Comp.; Robinson, Richard D., Comp.

TITLE An Introduction to the Cloze Procedure: An Annotated Bibliography.

INSTITUTION International Reading Association, Newark, Del.
PUB DATE 80
NOTE 41p.
AVAILABLE FROM International Reading Association, 800 Barksdale Rd., P.O. Box 8139, Newark, DE 19711 (Order No. 325, $1.50 member, $2.00 non-member)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Annotated Bibliographies; *Cloze Procedure; Elementary Secondary Education; *Reading Comprehension; *Reading Diagnosis; *Reading Instruction; Reading Skills; Reading Tests; Teaching Methods

ABSTRACT

The aim of this bibliography is to provide a reference on the cloze procedure that will be useful to both the practitioner and the researcher. The selection of material was made on the basis of the following criteria: the importance of the source as a contribution to cloze research; the extent and usefulness of the source's bibliography as a guide to related research; the implications of the material for practitioners; the suggested possibilities for future research using the cloze procedure; and the ease with which the original source can be obtained. The sources are arranged in nine categories: background reviews, comprehension and readability, statistical and constructional issues, the psychology of cloze, contextual phenomena, cloze as a teaching device, foreign language applications, and cloze and maze. (FL)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED184087

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

AN INTRODUCTION TO THE CLOZE PROCEDURE

An Annotated Bibliography

Compiled by
Michael C. McKenna
Wichita State University
and
Richard D. Robinson
University of Missouri at Columbia

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

International
Reading Association

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

1980 Revision

Published by the
INTERNATIONAL READING ASSOCIATION
800 Barksdale Road Newark, Delaware 19711

C S80 5335

INTERNATIONAL READING ASSOCIATION

OFFICERS
1979-1980

President Roger Farr, Indiana University, Bloomington, Indiana

Vice President Olive S. Niles, State Department of Education, Hartford, Connecticut

Vice President-Elect Kenneth S. Goodman, University of Arizona, Tucson, Arizona

Executive Director Ralph C. Staiger, International Reading Association, Newark, Delaware

DIRECTORS

Term Expiring Spring 1980
Mary Ann Baird, State Department of Education, Jackson, Mississippi
Addie Stabler Mitchell, Morehouse College, Atlanta, Georgia
Jean E. Robertson, University of Alberta, Edmonton, Alberta

Term Expiring Spring 1981
Norma Dick, Clovis Unified School District, California
Eleanor M. Ladd, University of South Carolina, Spartanburg, South Carolina
John C. Manning, University of Minnesota, Minneapolis, Minnesota

Term Expiring Spring 1982
Nicholas P. Criscuolo, Betsy Ross Middle School, New Haven, Connecticut
Bernice E. Cullinan, New York University, New York, New York
Patricia S. Koppman, San Diego Unified Schools, San Diego, California

Copyright 1980 by the
International Reading Association, Inc.
Library of Congress Cataloging in Publication Data

McKenna, Michael C.
An introduction to the cloze procedure.

Edition of 1972 compiled by R. D. Robinson.
Bibliography: p.
1. Cloze procedure Bibliography. I. Robinson, Richard David, 1940- joint author. II. Title.
Z5814.R25R6 1980 [LB1050.3] 016.428'4'076
ISBN 0-87207-325-4 79-25791

CONTENTS

5 Foreword

7 Background References

10 Reviews

12 Comprehension and Readability

20 Statistical and Constructional Issues

23 The Psychology of Cloze

29 Contextual Phenomena

32 Cloze as a Teaching Device

36 Foreign Language Applications

39 Cloze and Maze

IRA PUBLICATIONS COMMITTEE 1979-1980 Harold L. Herber, Syracuse University, *Chairing* • Alison Bellack, Largo (Florida) C & I Center • Janet R. Binkley, IRA • Faye R. Branca, IRA • Margaret Keyser Hill, Southern Illinois University • Jerry L. Johns, Northern Illinois University • Lloyd W. Kline, IRA • J. E. Merritt, The Open University • Addie S. Mitchell, Morehouse College • Christina Neal, St. Albans, West Virginia • P. David Pearson, University of Illinois at Champaign • Emma W. Rembert, Florida International University • James D. Riley, University of Montana • Maria Elena Rodriguez, Asociacion Internacional de Lectura, Buenos Aires • Robert B. Ruddell, University of California at Berkeley • Carol Sager, Chestnut Hill, Massachusetts • S. Jay Samuels, University of Minnesota • Lyndon W. Searfoss, Arizona State University • Cyrus F. Smith, Jr., University of Wisconsin at Milwaukee • Ralph C. Staiger, IRA • Judith Thelen, Frostburg (Maryland) State College • Carl J. Wallen, Arizona State University.

The International Reading Association attempts, through its publications, to provide a forum for a wide spectrum of opinion on reading. This policy permits divergent viewpoints without assuming the endorsement of the Association.

FOREWORD

The cloze procedure can be defined as a method of systematically deleting words from a prose selection and then evaluating the success a reader has in accurately supplying the words deleted. Various methods of deletion and scoring have been developed.

As long ago as 1897, a form of the technique was used by Ebbinghaus for investigating the properties of memory. However, it was first introduced to educators in 1953 by Wilson Taylor, who named it after the gestalt concept of closure. His initial idea was to develop a method by which the concepts of the newly arising field of information theory could be applied to continuous prose, but the uses of cloze soon expanded far beyond this application.

After 1953 research first centered on the methodology of cloze construction. Investigations concerned with deletion techniques, scoring methods, and test lengths were most common during this period. Closely related to these studies were those dealing with the reliability and the validity of the cloze procedure. Populations of varying sizes, age ranges, and educational levels were also in evidence.

As information from previous work became available, other investigators turned to cloze as a possible means of measuring comprehension and readability. Increased attention was also focused on implications for classroom teachers and the possible use of cloze as an instructional technique.

The aim of this bibliography is to provide a reference on the cloze procedure which will be useful to both the practitioner and the researcher. The selection of material was done on the basis of the following criteria: 1) importance of the source as a contribution to cloze research, 2) extent and usefulness of the source's bibliography as a guide to related research, 3) implications for practitioners, 4) suggested possibilities for future research using the cloze procedure, and 5) ease with which the original source can be obtained. Occasionally, studies weak in terms of one criterion were included because of a compensating strength in terms of another.

The sources used in this bibliography are arranged in nine categories: Background References, Reviews, Comprehension and Readability, Statistical and Constructional Issues, The Psychology of Cloze, Contextual Phenomena, Cloze as a Teaching Device, Foreign Language Applications, and Cloze and Maze. This format represents a considerable expansion of the original (1972) edition of this bibliography, reflecting the growing scope of cloze research.

At this writing, we estimate that between 500 and 600 papers are available on some aspect of the topic. Naturally, no attempt is made here to include every article dealing with the cloze procedure. Because of the increased number of references, each appears only in the section that corresponds to its principal emphasis.

MCM
RDR

BACKGROUND REFERENCES

The abundance of cloze research in the past quarter century has undoubtedly led many writers to presuppose a familiarity with the topic on the part of their readers. For this reason, the uninitiated may experience difficulties in acquiring an adequate background in the technique. The following references are therefore recommended as an introductory basis for more detailed work.

BEIL, DRAKE. "The Emperor's New Cloze," *Journal of Reading*, 20 (April 1977), 601-604.

Describes the construction of cloze passages, suggesting six primary objectives which can be accomplished using this procedure in the classroom. Junior and senior high school teachers will find this article of particular usefulness when considering applications of cloze for their reading programs.

BORMUTH, JOHN R. "The Cloze Readability Procedure," *Elementary English*, 45 (April 1968), 429-436.

Recommends the use of cloze as a potentially valuable technique for classroom teachers. Following a brief overview of cloze research, the author explains various applications of this procedure for classroom use. Suggestions include the use of cloze as a technique for placing students in graded materials, selecting appropriate instructional texts, and comparing alternative materials. Teachers who would like to incorporate cloze in their instructional activities will find this reference very helpful.

CULHANE, JOSEPH. "Cloze Procedures and Comprehension," *Reading Teacher*, 23 (February 1970), 410-413, 464.

Considers the construction and use of cloze as a measure of comprehension in the classroom. This reference provides examples of cloze construction and

suggestions for teachers. Good introduction for those interested in a brief overview of the area.

GREENE, FRANK P., et al. "Cloze Symposium," in George B. Schick and Merrill M. May (Eds.), *Multidisciplinary Aspects of College-Adult Reading*, Seventeenth Yearbook of the National Reading Conference. Milwaukee: National Reading Conference, 1968.

Presents commentaries from a number of the major cloze researchers. A wide variety of issues is discussed permitting the reader to gain an excellent perspective on the potential and limitations of cloze.

HAFNER, LAWRENCE E. "Cloze Procedure," *Journal of Reading*, 9 (May 1966), 415-421.

Describes various applications of cloze with particular attention to the research on cognitive abilities, personality variables, and diagnoses in reading. Notes the lack of references dealing with cloze as a teaching tool.

MORK, THEODORE A. "Closing the Placement Gap: A New Tool for Administrators and Teachers," *Educational Leadership*, 28 (April 1971), 763-767.

Suggests that the use of the cloze procedure would be a suitable substitute for both standardized reading tests and the informal reading inventory. This reference contains information comparing cloze test percentage scores from five research studies using different reading assessment measures with the frustration, instructional, and independent reading levels. This study should prove helpful in the evaluation of cloze test results.

RANKIN, EARL F. "The Cloze Procedure Revisited," in Phil L. Nacke (Ed.), *Interaction: Research and Practice in College-Adult Reading*, Twenty-Third Yearbook of the National Reading Conference. Clemson, South Carolina: National Reading Conference, 1974.

Traces the development of the cloze procedure, emphasizing the importance this technique has had in recent reading research. A well-developed overview of the field of cloze research.

RUPLEY, WILLIAM H. "The Cloze Procedure," *Journal of Reading*, 16 (March 1973), 496-502.

Presents a concise introduction to the cloze procedure, focusing on a number of specific concerns. Includes reviews of nine studies, several of which are available only through ERIC.

TAYLOR, WILSON L. "Cloze Procedure: A New Tool for Measuring Readability," *Journalism Quarterly*, 30 (Fall 1953), 415-433.

Introduces the term "cloze procedure," defines it, and suggests various applications of this technique. Reports the results of several exploratory studies concerned with the construction of cloze passages and the use of cloze as a measurement of readability level. Important reference because of its influence on the research which followed.

WEINTRAUB, SAMUEL. "The Cloze Procedure," *Reading Teacher*, 21 (March 1968), 567, 569, 571, 607.

A brief review of the development of cloze through its first 15 years. An excellent starting place.

REVIEWS

The abundance and variety of cloze research reports make comprehensive reviews impractical and rare. The reviews in this section are, therefore, selective in nature. There is an advantage in this selectivity, however, in that it permits a quick perspective on the major studies as they relate to one another. An exception is the Buros bibliography, which approaches completeness up to the time of its appearance. However, while this compilation is an extraordinarily useful resource, only a small number of the references cited are reviewed.

BICKLEY, A.C., BILLIE J. ELLINGTON, and RACHEL T. BICKLEY. "The Cloze Procedure: A Conspectus," *Journal of Reading Behavior*, 2 (Summer 1970), 232-249.

Reviews 105 studies concerned with the following aspects of cloze: readability, comprehension, language, and methodology. Contains references to most of the significant cloze research. Accompanying text provides a well-organized summary of this area.

BUROS, OSCAR K. *The Eighth Mental Measurements Yearbook*, Volume 2. Highland Park, New Jersey: Gryphon Press, 1978, 1163-1178.

Identifies 400 references related to the cloze procedure, beginning with the early work of Ebbinghaus. This listing includes most of the significant research work completed using some form of the cloze technique. Three comprehensive reviews of the cloze procedure also accompany the references.

FRAM, RALPH D. "A Review of the Literature Related to the Cloze Procedure," unpublished masters thesis, Boston University, 1972. Eric Document Reproduction Service No. ED 075 785.

Reviews 198 cloze studies between 1953 and 1971. Four categories are included: readability, comprehension, language facility, and instruction.

POTTER, THOMAS C. "Reading Skills in Young Children: Closure and Comprehension," unpublished doctoral dissertation, University of California at Los Angeles, 1968. *Dissertation Abstracts International*, 29 (1968), 1051A. University Microfilms No. 68-14556.

Identifies 81 cloze studies and lists them in a series of 20 tables containing the following information on each reference: author, date of study, subjects, cloze test description, other tests, research design, and findings. An especially useful presentation because of this organizational pattern.

RANKIN, EARL F. "Cloze Procedure—A Survey of Research," in Eric S. Thurston and Lawrence E. Hafner (Eds.), *The Philosophical and Sociological Bases of Reading*, Fourteenth Yearbook of the National Reading Conference. Milwaukee: National Reading Conference, 1965.

Surveys the cloze research completed to this date. References in this extremely thorough listing are covered under three general headings: the cloze procedure as a measuring instrument, the cloze procedure as a teaching device, and methodological considerations. This compilation of 47 studies should be a useful source of information on earlier cloze research.

COMPREHENSION AND READABILITY

Comprehension and readability are often defined in terms of one another. It is their interrelationship that gives cloze one of its major strengths—the capacity to match students and materials. Unlike formulas, cloze does not provide an "absolute" estimate of the readability of a passage which must, in turn, be matched with estimates of student ability. Instead, the cloze procedure gauges difficulty in a single step relative to a particular group of readers.

Understandably, many of the studies in this area have aimed at establishing criteria so that cloze scores can be used for this purpose. Others deal with the validity of cloze as a comprehension/readability measure. Two generalizations have emerged rather convincingly: 1) cloze does, in fact, measure comprehension and 2) established criteria are relatively stable across populations.

ALEXANDER, HENRY W. "An Investigation of the Cloze Procedure as a Measuring Device Designed to Identify the Independent, Instruction, and Frustration Reading Levels of Pupils in the Intermediate Grades," unpublished doctoral dissertation, University of Illinois, 1968. *Dissertation Abstracts International*, 29 (1969), 4314A-4315A. University Microfilms No. 69-10625.

Reports close correspondence between IRI results and cloze scores of students in the upper elementary grades. An instructional-level cloze-score range from 47 percent through 61 percent was determined, comparable to the findings of other investigators.

ANDERSON, THOMAS H. "Cloze Measures as Indices of Achievement Comprehension When Learning from Extended Prose," *Journal of Educational Measurement*, 11 (Summer 1974), 83-92.

Investigates the sensitivity of cloze scores to prose learning. College students were given 1) a multiple-choice comprehension test, 2) a fifth-word cloze test

from the text, 3) a fifth-word cloze test from a summary, 4) a multiple-choice cloze test from the text, and 5) a multiple-choice cloze test from a summary. These tests were given immediately before, immediately after, and four weeks after reading. All tests showed significant differences between the pre- and post-conditions. Further, summary cloze tests were resistant to forgetting. The measure most sensitive to the effect of reading was the regular (i.e., with blanks) summary cloze test.

BEARD, JACOB G. "Comprehensibility of High School Textbooks: Association with Content Area," *Journal of Reading*, 11 (December 1967), 229-234.

Analyzes the readability level of ten prose passages taken at random from high school textbooks in each of four content areas. These included biology, chemistry, American government, and world history. Each paragraph was evaluated using the cloze procedure and ten elements of expressional style often found in readability formulas. In addition, each passage was analyzed according to the number of words per T-unit. (A T-unit can be defined as the shortest unit in a sentence which can begin with a capital letter and terminate in a period.) Statistical procedures showed insignificant differences between readability levels in the four content areas on all readability measures except two of the elements of expressional style.

BORMUTH, JOHN R. "Cloze Tests as Measures of Readability and Comprehension Ability," unpublished doctoral dissertation, Indiana University, 1962. *Dissertation Abstracts International*, 23 (1963), 4218-4219. University Microfilms No. 63-2586.

Compares performance of fourth, fifth, and sixth graders on cloze and on multiple-choice comprehension tests. An overall correlation of .946 between the two test types was reported. Cloze was observed to be highly reliable and efficient as a measure of readability and comprehension.

BORMUTH, JOHN R. "Cloze as a Measure of Readability," in J. Allen Figurel (Ed.), *Reading as an Intellectual Activity*, Proceedings of the Internatinal Reading Association, 8. New York: Scholastic Magazines, 1963.

Investigates the use of cloze as a measure of the comprehension difficulties of the passages from which they are constructed. A cloze test and a multiple-choice comprehension test were developed for each of nine passages taken from the fields of literature, social studies, and science. Correlations between the two tests were highly significant. Subjects were students in grades four, five, and six.

BORMUTH, JOHN R. "Validities of Grammatical and Semantic Classifications of Cloze Test Scores," in J. Allen Figurel (Ed.), *Reading and Inquiry*,

Proceedings of the International Reading Association, 10. Newark, Delaware: International Reading Association, 1965.

Reports the results obtained from the administration of a series of cloze tests to 50 sixth and seventh graders. Individual cloze responses were classified according to one of seven types. Statistical analysis showed that exact scoring seemed to yield the most valid results in the measurement of individual differences in reading ability and in the discrimination of passage difficulty.

BORMUTH, JOHN R. "Readability: A New Approach," *Reading Research Quarterly*, 1 (Spring 1966), 79-132.

Cloze tests are used to determine the comprehension difficulty of 20 passages and their component sentences, clauses, and words. Abundant results are discussed in the context of five basic problems in the development of readability formulas.

BORMUTH, JOHN R. "Comparable Cloze and Multiple-Choice Comprehension Test Scores," *Journal of Reading*, 10 (February 1967), 291-299.

Provides a frame of reference for interpreting cloze results by experimentally determining cloze scores corresponding to the independent and instructional levels. This was done by comparing the performance of students on cloze and on multiple-choice comprehension tests. Subjects were intermediate level students.

BORMUTH, JOHN R. "Cloze Test Readability: Criterion Reference Scores," *Journal of Educational Measurement*, 5 (Fall 1968), 189-196.

Establishes a set of cloze test scores comparable to instructional and independent level criterion scores on oral reading tests. Classroom teachers can use these results as a frame of reference for evaluating cloze results.

BORMUTH, JOHN R. "Factor Validity of Cloze Tests as Measures of Reading Comprehension Ability," *Reading Research Quarterly*, 4 (Spring 1969), 358-365.

Reports a well-controlled study which presents evidence that reading comprehension is the preponderant factor in the cloze task. To some extent, the results are in opposition to those of an earlier factor analysis of cloze by Weaver and Kingston (reviewed in this section).

BORMUTH, JOHN R. "Literacy in the Classroom," in W.D. Page (Ed.), *Help for the Reading Teacher: New Directions in Research*. Urbana, Illinois: National Conference on Research in English, 1975.

Suggests the need for criterion cloze scores at each grade level and for better methods of deriving them. The result is a table of criterion scores partitioned by grade level and by type of material (textual, reference, voluntary).

CAREY, ROBERT F. "Cloze Encounters of a Different Kind," *Reading Horizons*, 19 (Spring 1979), 228-231.

Discusses the possible affective consequences of cloze testing and suggests that the post-oral reading format suggested by Page (see review, this section) is a viable alternative through which cloze is made less threatening.

COHEN, JUDITH. "The Effect of Content Area Material on Cloze Test Performance," *Journal of Reading*, 19 (December 1975), 247-250.

Reports differences in cloze difficulty attributable to content area in a study with seventh graders. Areas examined were literature, science, and social studies. (Cf. Beard, this section.)

EDWARDS, ROBERT D. "The Cloze Procedure as a Measure of the Reading Comprehension of Poetry," unpublished doctoral dissertation, University of Arizona, 1973. *Dissertation Abstracts International*, 34 (1974), 4982A. University Microfilms No. 74-4182.

Reports that 1) cloze is a reliable measure for use with poetry, 2) cloze is no less reliable than multiple-choice tests, 3) printing the cloze test in prose rather than in the original poetic format does not significantly alter scores, and 4) alternate cloze forms over the same poem may tend to vary in difficulty. Subjects were 480 college freshmen.

GALLANT, RUTH. "Use of Cloze Tests as a Measure of Readability in the Primary Grades," in J. Allen Figurel (Ed.), *Reading and Inquiry*, Proceedings of the International Reading Association, 10. Newark, Delaware: International Reading Association, 1965.

Examines two problems related to the use of cloze at the primary level: 1) the validity and reliability of this technique as a test of reading comprehension and 2) the influence of increased sentence length on the reading difficulty of material for these grades. The findings indicated that cloze can be used in the primary grades as a measure of comprehension. Cloze also was effective in isolating variables which affect readability.

KINGSTON, ALBERT J., and WENDELL W. WEAVER. "Recent Developments in Readability Appraisal," *Journal of Reading*, 11 (October 1967), 44-47.

Discusses the strengths and weaknesses of several research studies in

readability. An extensive bibliography is included which should prove helpful to those interested in similar research efforts.

KLARE, GEORGE R. *The Measurement of Readability*. Ames, Iowa: Iowa State University Press, 1963.

Traces the development of readability assessment from its inception. A valuable reference because of its organization and completeness. It includes several charts which briefly summarize the essential steps in the application of most readability formulas. This book is a primary source for those who want to review the pertinent research in readability. The extensive, annotated bibliography is particularly useful.

McKENNA, MICHAEL C. "Diagnostic Uses of the Cloze Procedure," *Selected Articles on the Teaching of Reading*, Set B, No. 41. New York: Barnell Loft, 1978.

Suggests guidelines for the construction and administration of an informal cloze inventory. Also discussed are techniques of analyzing cloze errors to diagnose reading behaviors.

McNINCH, GEORGE, RICHARD KAZELSKIS, and JO ANN COX. "Appropriate Cloze Deletion Schemes for Determining Suitability of College Textbooks," in Phil L. Nacke (Ed.), *Interaction: Research and Practice for College-Adult Reading*, Twenty-Third Yearbook of the National Reading Conference. Clemson, South Carolina: National Reading Conference, 1974.

Examines the effect of content area of cloze passage, deletion pattern, and reading achievement on cloze performance of college freshmen. Significant main effects were observed for all three variables in addition to a significant interaction between content area and deletion pattern.

MILLER, G.R., and E.B. COLEMAN. "A Set of 36 Prose Passages Calibrated for Complexity," *Journal of Verbal Learning and Verbal Behavior*, 6 (December 1967), 851-854.

Classifies 36 prose passages according to complexity using the cloze procedure. These selections range in difficulty from first grade through advanced technical writing. Three different types of cloze were used in this study: deletion of every fifth word, deletion of one word in each sentence, and a pattern in which the subject proceeds through a passage trying to guess each of the words.

NESVOLD, KARL J. "Cloze Procedure Correlation with Perceived Readability," *Journalism Quarterly*, 49 (Autumn 1972), 592-594.

Cloze scores of college students on tests made from a variety of materials are compared with judgments of reading difficulty. A moderate correlation (.533) between cloze and perceived difficulty was observed. Perceived difficulty correlated less well with SMOG (.467), words per sentence (.422), and silent reading speed (.289).

PAGE, WILLIAM D. "Comprehension and Cloze Performance," *Reading World*, 17 (October 1977), 1-12.

Investigates the relationship between comprehension scores drawn from oral reading performance and post-oral reading cloze test scores. Subjects in this study completed both an oral reading of a passage and then a cloze test on the same selection. Miscue analysis of the oral reading was compared with cloze results. A systematic relationship between the two scores was observed.

PETERSON, JOE, and MARTHA CARROLL. "The Cloze Procedure as an Indicator of the Instructional Level for Disabled Readers," in Phil L. Nacke (Ed.), *Interaction: Research and Practice in College-Adult Reading*, Twenty-Third Yearbook of the National Reading Conference. Clemson, South Carolina: National Reading Conference, 1974.

Examines usefulness of cloze for determining instructional level of middle school students classified as disabled. Results suggest that the established cloze score range of 38 percent to 44 percent as an indicator of the 75 percent Betts comprehension criterion is valid for this population.

PETERSON, JOE, ED PARADIS, and NAT PETERS. "Revalidation of the Cloze Procedure as a Measure of the Instructional Level for High School Students," in Phil L. Nacke (Ed.), *Diversity in Mature Reading: Theory and Research*, Twenty-Second Yearbook of the National Reading Conference, Volume 1. Boone, North Carolina: National Reading Conference, 1973.

A mean cloze score of ca. 42 percent was found to correspond to the lower limit of the instructional level for a geographically diverse population of high school students. This result is closely aligned with those for other populations.

PETERSON, JOE, NAT PETERS, and ED PARADIS. "Validation of the Cloze Procedure as a Measure of Readability with High School, Trade School, and College Populations," in Frank P. Greene (Ed.), *Investigations Relating to Mature Reading*, Twenty-First Yearbook of the National Reading Conference, Volume 1. Milwaukee: National Reading Conference, 1972.

Reports university and vocational-technical student cloze scores of ca. 44 percent and 43 percent, respectively, indicate instructional level. These results

are closely aligned with those for other populations. Authors judge the data for high school students to be faulty (see replication, this section).

RANKIN, EARL F. "An Evaluation of the Cloze Procedure as a Technique for Measuring Reading Comprehension," unpublished doctoral dissertation, University of Michigan, 1958. *Dissertation Abstracts International*, 19 (1958), 733-734. University Microfilms No. 58-3722.

Seminal investigation of the cloze task as it relates to the type of words deleted. General conclusion is that cloze is valid as a measure of reading comprehension.

RANKIN, EARL F. "Uses of the Cloze Procedure in the Reading Clinic," in J. Allen Figurel (Ed.), *Reading in a Changing Society*, Proceedings of the International Reading Association, 4. New York: Scholastic Magazines, 1959.

Examines the use of cloze as a diagnostic procedure in the reading clinic. Several specific suggestions are made for its implementation as a remedial measure. The development of cloze exercises for individual remediation in subject matter areas seems to be an especially useful recommendation.

RANKIN, EARL F., and JOSEPH CULHANE. "Comparable Cloze and Multiple-Choice Comprehension Test Scores," *Journal of Reading*, 13 (December 1969), 193-198.

Replicates the earlier work of Bormuth in 1967 and 1968 (studies reviewed in this section) in the establishment of equivalent cloze and multiple-choice percentage scores. Results of this study corroborate most closely with Bormuth's 1968 study.

RANSOM, PEGGY E. "Determining Reading Levels of Elementary School Children by Cloze Testing," in J. Allen Figurel (Ed.), *Forging Ahead in Reading*, Proceedings of the International Reading Association, 12, Part 1. Newark, Delaware: International Reading Association, 1968.

Examines the relationship between cloze and the informal reading inventory in terms of establishing reading levels. Students in grades one to six were tested with cloze and an IRI, both constructed from the same series. Significant correlations were reported for the instructional level in grades two to six. First grade may be a problem for those wishing to use cloze to establish reading levels.

ROBINSON, RICHARD D. "An Investigation into the Use of the Cloze Procedure with a Group of Functionally Illiterate Adults," unpublished doctoral dissertation, University of Georgia, 1971. *Dissertation Abstracts International*, 32 (1972), 3572A. University Microfilms No. 72-2535.

Describes the use of the cloze procedure with a group of functionally illiterate adults. Three types of cloze deletion were evaluated as predictors of a standardized reading test. The effectiveness of cloze in the measurement of reading difficulty was compared with several readability formulas. Results indicated that, for this population, a mechanical one-in-five deletion pattern was the best predictor and that cloze seemed to evaluate the prose passages in a more realistic manner.

ROBINSON, RICHARD D. "The Cloze Procedure: A New Tool for Adult Education," *Adult Education*, 23 (Winter 1973), 87-98.

Reports the results of a study using the cloze procedure with a group of adults having limited reading ability. Three forms of cloze construction were used as predictors of a standardized reading test and also evaluated in relation to several readability formulas in ranking seven prose passages. Results indicated that 1) the fifth word deletion pattern was most effective in predicting the reading test and 2) a rank order correlation between the ranking of cloze and the readability formulas was not significant.

RUDDELL, ROBERT B. "An Investigation of the Effect of the Similarity of Oral and Written Patterns of Language Structure on Reading Comprehension," unpublished doctoral dissertation, Indiana University, 1963. *Dissertation Abstracts International*, 24 (1964), 5207-5208. University Microfilms No. 64-3826.

Reports that, for fourth grade students, cloze tests are significantly easier when the passages from which they are constructed are similar linguistically to the children's speech patterns.

SMITH, NANCY, and ANNE ZINC. "A Cloze-Based Investigation of Reading Comprehension as a Composite of Subskills," *Journal of Reading Behavior*, 9 (Winter 1977), 395-398.

Analyzes the results of a cloze test as compared with the comprehension subskills scores obtained on a standardized reading test. The following five comprehension subskills areas were identified on the Davis Reading Test: literal comprehension, comprehension of main ideas, inferential comprehension, literary awareness, and structural awareness. The findings of this study indicate the validity of the cloze test as a measure of the results of a standardized reading test.

WEAVER, WENDELL W., and ALBERT J. KINGSTON. "A Factor Analysis of the Cloze Procedure and other Measures of Reading and Language Ability," *Journal of Communication*, 13 (December 1963), 252-261.

Reports a factor analysis of cloze using standardized reading tests. Cloze was found to relate only moderately to a verbal comprehension factor. In addition, another factor, distinct from comprehension, was observed.

STATISTICAL AND CONSTRUCTIONAL ISSUES

Numerous studies have investigated cloze in terms of instrumentation—its reliability, scoring, and error variance. These efforts have led to a refined technology of cloze which is perhaps unparalleled in the realm of informal testing. A representative sample of these studies is included here.

BORMUTH, JOHN R. "Experimental Applications of Cloze Tests," in J. Allen Figurel (Ed.), *Improvement of Reading through Classroom Practice*, Proceedings of the International Reading Association, 9. Newark, Delaware: International Reading Association, 1964.

Investigates whether five different forms of a cloze test, constructed from the same prose passage, differ in difficulty. The number of cloze deletions was also considered in determining test level. Results indicated significant differences in mean scores of individual tests. An increase in cloze deletions tended to diminish these differences. The author suggests that when single forms of a cloze test are used, evaluation of the results must take into account possible error due to test selection. Introduces statistical procedures for determining whether test forms were drawn from passages of equal difficulty.

BORMUTH, JOHN R. "Optimum Sample Size and Cloze Test Length in Readability Measurement," *Journal of Educational Measurement*, 2 (June 1965), 111-116.

Presents data enabling cloze investigators to make useful estimates in determining sample size and test length. This article should prove useful to persons designing cloze research.

GROUWS, DOUGLAS A., and RICHARD D. ROBINSON. "Some Ideas Concerning the Readability of Classroom Mathematics Materials," *School Science and Mathematics*, 73 (December 1973), 711-716.

Discusses the construction of cloze tests from mathematical and scientific materials. These are often characterized by symbolic expressions and other departures from continuous prose. Numerous suggestions are made and should be of benefit to the content area teacher who uses such materials.

HAFNER, LAWRENCE E. "Implications of the Cloze," in Eric L. Thurston and Lawrence E. Hafner (Eds.), *The Philosophical and Sociological Bases of Reading*, Fourteenth Yearbook of the National Reading Conference. Milwaukee: National Reading Conference, 1965.

Generates alternative patterns of cloze construction with suggestions for their use in the measurement of creativity, intelligence, concept development, and dynamics of thinking. An innovative article containing observations and suggestions for future cloze research.

McKENNA, MICHAEL C. "Synonymic versus Verbatim Scoring of the Cloze Procedure," *Journal of Reading*, 20 (November 1976), 141-143.

Investigates the question of whether counting and not counting synonyms as correct responses to cloze items discriminates differently among subjects. For 35 seventh graders taking two cloze tests scored in each manner, the rank correlation between the two scoring techniques was .952. Apparently there is no advantage in giving credit for synonyms if the purpose is to differentiate among students. Moreover, each scoring method correlated significantly with achievement test results in reading comprehension although synonymic scoring correlated more highly (.895) than did verbatim scoring (.809).

MEREDITH, KEITH, and JOSEPH VAUGHAN. "Stability of Cloze Scores across Varying Deletion Patterns," in P. David Pearson and Jane Hansen (Eds.), *Reading: Disciplined Inquiry in Process and Practice*, Twenty-Seventh Yearbook of the National Reading Conference. Clemson, South Carolina: National Reading Conference, 1978.

Compares two deletion patterns (*n*th-word and random) in terms of stability of alternate forms within a deletion pattern and reliability based on internal consistency. Random deletion of words produced more stable alternate forms without sacrifice of reliability. Subjects were seventh and eighth graders.

TAYLOR, WILSON L. "Recent Developments in the Use of the Cloze Procedure," *Journalism Quarterly*, 33 (Winter 1956), 42-48, 99.

Discusses many of the problems encountered in cloze construction. This reference is especially helpful as an introduction to cloze methodology.

TAYLOR, WILSON L., and IVAN W. WALDMAN. "Latency and Focus Methods of Cloze Quantification," in George B. Schick and Merrill M. May (Eds.),

Reading: Process and Pedagogy, Nineteenth Yearbook of the National Reading Conference, Volume 2. Milwaukee: National Reading Conference, 1970.

Discriminates among three scoring methods, with thorough discussion of each. Contains valuable treatment of how nonparametric statistics can and should be employed with cloze.

VAUGHAN, JOSEPH L., JR., and KEITH E. MEREDITH. "Reliability of the Cloze Procedure as Assessments of Various Language Elements," in P. David Pearson and Jane Hansen (Eds.), *Reading: Disciplined Inquiry in Process and Practice*, Twenty-Seventh Yearbook of the National Reading Conference. Clemson, South Carolina: National Reading Conference, 1978.

Examines the reliability of cloze as a measure of 1) semantic awareness after reading and 2) syntactic fluency. Subjects were eighth graders. High reliability coefficients were obtained uniformly although parallel-form reliability was in all cases significantly lower than internal-consistency reliability. The authors therefore endorse cloze for practical purposes but caution against using only a single test for establishing reading levels.

WRIGHT, DENNIS A. "Criterion Referenced Word Recognition Measures as Predictors of Reading Achievement," unpublished doctoral dissertation, Arizona State University, 1978. *Dissertation Abstracts International*, 39 (1978), 117A. University Microfilms No. 78-10567.

A secondary finding of this study is that a practice-effect may result when children have not had prior experience with cloze. This outcome should elicit caution in those using cloze for assessment purposes. Subjects were 119 third graders.

THE PSYCHOLOGY OF CLOZE

Numerous studies have explored the psychological aspects of the cloze procedure. A few of these have dealt with affective matters such as the interests and attitudes of subjects, but the great majority have treated cognitive concerns. Major areas of investigation include 1) the psychological events of the cloze task and 2) the relationship of cloze to other cognitive abilities such as closure, intelligence, associational fluency, and semantic memory. Because the cloze task is frequently explored in relation to these abilities, no attempt has been made to further subdivide the studies.

BLANTON, B. ELGIT, and J. JAAP TUINMAN. "Objective and Subjective Information Value of Words," *Psychological Reports*, 29 (December 1971), 972.

Contrasts the cloze and RIP tasks, using them to introduce the new concepts of the objective and subjective information value of words.

BLUMENFELD, JACOB P., and GERALD R. MILLER. "Improving Reading through Teaching Grammatical Constraints," *Elementary English*, 43 (November 1966), 752-755.

Reports results of a study with college students in which poor readers were observed to do as well as good ones on cloze tests graded for correct form class only. Ability to generate grammatically acceptable responses appears not to be closely related to reading proficiency for this population.

BYRNE, MARY ANN, JOHN F. FELDHUSEN, and ROBERT B. KANE. "The Relationships among Two Cloze Measurement Procedures and Divergent Thinking Abilities," *Reading Research Quarterly*, 6 (Spring 1971), 378-393.

Examines the relationship between cloze and each of three divergent thinking abilities: associational fluency, expressional fluency, and flexibility as defined by Guilford.

CARVER, RONALD P. "Understanding, Information Processing, and Learning from Prose Materials," *Journal of Educational Psychology*, 64 (February 1973), 76-84.

Compares performance of college students on two types of cloze tests with performance on an understanding measure. Concludes that cloze is not an adequate measure of understanding.

HAFNER, LAWRENCE E. "Relationships of Various Measures to the 'Cloze,'" in Eric L. Thurston and Lawrence E. Hafner (Eds.), *New Concepts in College-Adult Reading*, Thirteenth Yearbook of the National Reading Conference. Milwaukee: National Reading Conference, 1964.

Reports correlations between cloze and an array of other measures including intelligence, cloze completion speed, and academic achievement.

HENRY, PEGGY E. "The Effect of Interest on Reading Comprehension as Measured by Cloze and Multiple-Choice Tests," unpublished doctoral dissertation, University of Iowa, 1969. *Dissertation Abstracts International*, 30 (1970), 3857A-3858A. University Microfilms No. 70-4369.

Investigates the effect of subject matter interest on multiple-choice comprehension test scores and on cloze test scores. Subjects were elementary school children divided into male and female groups, and interest was presupposed by selecting passages thought to appeal either to boys or to girls but not to both. Multiple-choice scores were significantly influenced by this measure of interest; cloze scores were not.

HORTON, RAYMOND J. "The Construct Validity of Cloze Procedure: An Exploratory Factor Analysis of Cloze, Paragraph Reading, and Structure-of-Intellect," unpublished doctoral dissertation, Hofstra University, 1973. *Dissertation Abstracts International*, 34 (1973), 3140A. University Microfilms No. 73-30000.

Reports results of a factor analysis of cloze in relation to various intellectual measures. Two factors predominated: 1) semantic relations and 2) divergent production of semantic units classes. Three other factors were also identified: 3) verbal creativity, 4) memory, and 5) semantic implications (intersentential). Subjects were ninth graders.

JENKINSON, MARION D. "Selected Processes and Difficulties of Reading Comprehension," unpublished doctoral dissertation, University of Chicago, 1957.

Uses cloze to measure high school students' comprehension of three types of literary prose: descriptive-metaphorical, allegorical, and ironical. Subjects were interviewed as to how they approached a task.

KAPLAN, IRA T., THOMAS CARVELLAS, and WILLIAM METLAY. "Effect of Context on Verbal Recall," *Journal of Verbal Learning and Verbal Behavior*, 10 (April 1971), 207-212.

Examines the effect of amount of context on the number of acceptable responses (target words) to a cloze blank and to the time needed to produce a response. The authors succeed in relating Bousfield's search model for verbal recall to a contextual situation. In the process, an important finding emerges: the set of memory elements scanned for a cloze response often contains unacceptable (nontarget) words.

KOHLER, EMMETT T. "An Investigation of Cloze Scores in Terms of Selected Cognitive Variables," unpublished doctoral dissertation, Florida State University, 1966. *Dissertation Abstracts International*, 27 (1966), 114A-115A. University Microfilms No. 66-5454.

Compares cloze scores of 257 tenth graders with scores on a number of other measures. Cloze was found to be factorially complex (as other analyses have shown). A high relationship was observed between cloze scores and the SCAT verbal score.

MANIS, MELVIN, and ROBYN M. DAWES. "Cloze Score as a Function of Attitude," *Psychological Reports*, 9 (July/December 1961), 79-84.

Investigates the effects on the cloze scores of college students of 1) rate of deletion and 2) attitude of the students toward the controversial topic of the passage. No difference was observed between a fourth word and an eighth word deletion rate. However, students in general did significantly better on the cloze test if they agreed with the point of view expressed. This difference was traced largely to connective or function words rather than content words, leading the authors to suggest that sympathy with an author's position may elicit greater responsiveness to the interrelationships of ideas.

McKENNA, MICHAEL C. "An Investigation of the Cloze Procedure as a Memory-Search Process," unpublished doctoral dissertation, University of Missouri at Columbia, 1977. *Dissertation Abstracts International*, 38 (1978), 6624A. University Microfilms No. 78-03741.

Examines a model of cloze retrieval in which 1) contextual constraints are inferred from context, 2) an examination set containing words meeting one constraint is located, and 3) elements of this set are considered in order of associative strength until a word is encountered which meets any additional constraints. It is not suggested that each step of the process is consciously directed by the cloze subject but that the stages are implicit components of cloze retrieval. To insure task competence, subjects were excellent readers—thirty doctoral students in English or English education. The model was largely supported.

McKENNA, MICHAEL C. "Cloze and Closure: The Issue of Definition," *Perceptual and Motor Skills*, 46 (June 1978), 1153-1154.

Challenges the idea that the cloze procedure is poorly named by demonstrating the breadth with which gestalt psychologists viewed the concept of closure.

McKENNA, MICHAEL C. "Inferential Aspects of the Cloze Task," *Reading Horizons*, 19 (Summer 1979), 284-291.

Discusses and subdivides the cloze task from a logical and from a psychological perspective. This paper should serve as a useful starting point for those interested in investigating the psychological processes involved in cloze. It should also benefit those wishing simply to better understand the task.

OHNMACHT, FRED W., and JAMES T. FLEMING. "Perceptual Closure and Cloze Performance: A Replication with Older Subjects," *Journal of General Psychology*, 87 (October 1972), 225-229.

Compares cloze performance of college students with performance on four measures of closure, as well as with several other measures. For this population, a much weaker relationship was observed between cloze and closure than in an earlier study with younger students. The authors caution that cloze is factorially complex.

OHNMACHT, FRED W., WENDELL W. WEAVER, and E.T. KOHLER. "Cloze and Closure: A Factorial Study," *Journal of Psychology*, 74 (March 1970), 205-217.

Reports results of a comparison of the cloze performance of high school students with their visual closure ability. A moderate relationship was observed.

RANKIN, EARL F. "Closure and Cloze Procedure," *North Central Reading Association Yearbook*, 3-4 (1965), 54-84.

Hypothesizes that the relationship between visual closure abilities and cloze performance is stronger for younger subjects than for older ones. Several later studies suggest the truth of this idea.

RANKIN, EARL F. "Characteristics of the Cloze Procedure as a Research Tool in the Study of Language," in P. David Pearson and Jane Hansen (Eds.), *Reading: Disciplined Inquiry in Process and Practice*, Twenty-Seventh Yearbook of the National Reading Conference. Clemson, South Carolina: National Reading Conference, 1978.

Excellent discussion of the background and psychological aspects of cloze, particularly in relation to information processing theories. An especially articulate defense of cloze as a comprehension measure is included.

TAYLOR, WILSON L. "Application of 'Cloze' and Entropy Measures to the Study of Contextual Constraint in Samples of Continuous Prose," unpublished doctoral dissertation, University of Illinois, 1954. *Dissertation Abstracts International*, 15 (1955), 464-465. University Microfilms No. 55-592.

Relates cloze to various entropy measures from the then emergent science of information theory. Contains important results regarding the information value of words and response distribution for cloze items.

TREISMAN, ANNE M. "Effect of Verbal Context on Latency of Word Selection," *Nature*, 206 (April 10, 1965), 218-219.

Investigates the relative appropriateness of five alternative models of cloze retrieval. Results suggest that the most probable model first involves the generation of a sample of possible responses and, then, a selection from within that sample.

TUINMAN, J. JAAP. "The Removal of Information Procedure (RIP): A First Analysis," *Journal of Reading Behavior*, 3 (Spring 1971), 44-50.

Introduces the RIP (removal of information procedure) which is a reverse cloze technique. Instead of replacing deleted words, subjects are asked to identify for deletion those words which would be most difficult for someone else to guess. The RIP is based on the assumption that language users can recognize high information words. The purpose of this exploratory study was twofold: to determine whether the RIP would be executed reliably and effectively and to establish the relationship of other measures of language performance to this technique. Results taken from a series of cloze tests and other measures indicated the potential usefulness of this procedure.

TUINMAN, J. JAAP. "Speculations on Cloze as a Search Procedure," in Frank P. Greene (Ed.), *Investigations Relating to Mature Reading*, Twenty-First Yearbook of the National Reading Conference, Volume 1. Milwaukee: National Reading Conference, 1972.

Relates the cloze task to a model of search and retrieval developed by Shiffrin and Atkinson. The model is threefold: 1) search, 2) recovery, and 3) response generation.

VAUGHAN, JOSEPH L., ROBERT J. TIERNEY, and MADELON ALPERT. "A Psycholinguistic Analysis of Cloze Responses," in P. David Pearson (Ed.),

Reading: Theory, Research and Practice, Twenty-Sixth Yearbook of the National Reading Conference. Clemson, South Carolina: National Reading Conference, 1977.

Examines the relationship between syntactically acceptable and semantically acceptable responses by various pupil groups on cloze tasks. Psycholinguistic analysis of the cloze responses indicate high correlations between the two different cloze scores.

WEAVER, WENDELL. "Theoretical Aspects of the Cloze Procedure," in Eric S. Thurston and Lawrence E. Hafner (Eds.), *The Philosophical and Sociological Bases of Reading*, Fourteenth Yearbook of the National Reading Conference. Milwaukee: National Reading Conference, 1965.

Emphasizes the potential role of the cloze procedure in the study of language behavior and thought. Weaver criticizes the gestaltist view of cloze. He suggests cloze is a type of language search process rather than the mere completion of a perceptual task. A very extensive bibliography is included.

CONTEXTUAL PHENOMENA

The nature of the cloze procedure has invited investigations into the effects of differing deletion strategies, which serve to adjust the quantity, the quality, and the arrangement of context around blanks. Three generalizations seem warranted at this time: 1) that bilateral context (surrounding) is more helpful than unilateral context (on one side only); 2) that the usefulness of any word of context in supplying a deleted word diminishes as its distance from the deletion increases; and 3) that the traditional, fifth word deletion pattern is quite adequate in terms of general utility.

BARTOO, ROY K. "The Effect of Cumulative Context upon Cloze Task Performance of Tenth Graders," unpublished doctoral dissertation, State University of New York at Buffalo, 1975. *Dissertation Abstracts International*, 36 (1975), 842A. University Microfilms No. 75-16951.

Investigates the effect of increasing the amount of unmutilated text preceding the first cloze blank. No significant differences in the cloze scores of tenth graders were observed on tests having 0, 300, and 600 words of initial text.

ERICKSON, LAWRENCE, and LEE H. HANSEN. "Performance on Cloze Passages in and out of Context," in Phil L. Nacke (Ed.), *Interaction: Research and Practice in College-Adult Reading*, Twenty-Third Yearbook of the National Reading Conference. Clemson, South Carolina: National Reading Conference, 1974.

Examines the effect on the cloze scores of fifth graders of inserting segments of unmutilated text after every tenth blank. No significant difference was observed with and without these "buffer" zones.

GREENE, FRANK P. "Modification of the Cloze Procedure and Changes in Reading Test Performance," *Journal of Educational Measurement*, 2 (December 1965), 213-217.

Compares a standard mechanical deletion technique with a noun-verb-adverb-adjective deletion pattern, with these words subjectively selected as likely to be predicted by a better reader. Results showed that the modified test was superior to the mechanical method in reliability and item performance. Concludes that this increased reliability may be enough reason to use a modified cloze deletion system but recognizes its inherent loss of convenience.

MacGINITIE, WALTER H. "Contextual Constraint in English Prose Paragraphs," *Journal of Psychology*, 51 (January 1961), 121-130.

Classifies various patterns of cloze deletion including omissions of both single words and groups of words. Results indicate that deletions ranging from every sixth word through every twenty-fourth word were almost equally restorable. When omissions were every third word or less, the replacement task became much more difficult. Words deleted in groups of two, three, and four were more difficult to restore than single omissions. Concludes that the influence of context on the selection of a particular cloze response is highly related to the number of words between deletions. The removal of every fifth word seems to be the best pattern.

OHNMACHT, FRED W., and JAMES T. FLEMING. "Further Effects of Selected Deletion Strategies and Varying Contextual Constraints on Cloze Performance," in Phil L. Nacke (Ed.), *Interaction: Research and Practice in College-Adult Reading*, Twenty-Third Yearbook of the National Reading Conference. Clemson, South Carolina: National Reading Conference, 1974.

Examines the effects of 1) the form class of cloze deletions and 2) the arrangement of context on cloze performance when the amount of context is held constant. Subjects were college students. It was observed that bilateral constraint (i.e., the presence of words on both sides of a blank) was significantly more helpful than unilateral constraint regardless of the form class of the deletion.

TANNENBAUM, PERCY H. "Effects of Grammatical Information on Word Predictability," *Journal of Communication*, 19 (March 1969), 41-48.

Examines the effects of providing college students with information as to the form class of cloze deletions. Such information was seen to increase the students' abilities 1) to supply answers of the correct form class and 2) to supply more verbatim answers to items in which function words had been deleted.

TAYLOR, WILSON L. "Relative Influences of Preceding, Following, and Surrounding Contexts on Cloze Performance," in Frank P. Greene (Ed.),

Investigations Relating to Mature Reading, Twenty-First Yearbook of the National Reading Conference, Volume 1. Milwaukee: National Reading Conference, 1972.

Investigates the effect of contextual arrangement about a blank on the ability to complete it. the most definite finding is a lack of significance between the usefulness of preceding and following context.

WEAVER, WENDELL W. "An Examination of Some Differences in Oral and Written Language Using the Cloze Procedure," unpublished doctoral dissertation, University of Georgia, 1961. *Dissertation Abstracts International*, 22 (1962), 2702. University Microfilms No. 61-6587.

Compares the effects of presentation mode (reading and aural) on the ability of college students to respond to noun/verb deletions and to tenth word deletions. The central findings are 1) that noun/verb deletions are equally difficult whether the material is presented in a reading or in an aural format and 2) that tenth word deletions are significantly easier in the reading format than in the aural.

CLOZE AS A TEACHING DEVICE

Evidence that cloze can be an effective instructional device has steadily accumulated since it was introduced to educators in 1953. In 1971, Jongsma indicated that pessimistic results possibly were due to defective research techniques; but a number of subsequent studies appear to have avoided this shortcoming, producing some very promising conclusions.

BLOOMER, RICHARD H. "The Cloze Procedure as a Remedial Reading Exercise," *Journal of Developmental Reading*, 5 (Spring 1962), 173-181.

Describes one of the first attempts to use cloze in the classroom. A series of graded cloze exercises was used to improve reading comprehension in a group of college students. Analysis of the results tended to show that these subjects increased significantly in comprehension and total reading ability. Direct teacher participation was limited to clerical duties. This study shows some of the inherent problems associated with cloze research in the classroom.

BORTNICK, ROBERT, and GENEVIEVE S. LOPARDO. "An Instructional Application of the Cloze Procedure," *Journal of Reading*, 16 (January 1973), 296-300.

Provides specific suggestions for using the cloze procedure as a means of teaching comprehension.

BORTNICK, ROBERT, and GENEVIEVE S. LOPARDO. "The Cloze Procedure: A Multipurpose Classroom Tool," *Reading Improvement*, 13 (Summer 1976), 113-117.

Examines the use of the cloze procedure by the classroom teacher in reading evaluation, diagnosis, and instruction. Specific suggestions are given in each of these areas as possible uses for the cloze technique.

GIUCE, BILLY M. "The Use of the Cloze Procedure for Improving Reading Comprehension of College Students," *Journal of Reading Behavior*, 1 (Summer 1969), 81-92.

Reports the results of an investigation to determine the influence of comprehension and cloze instruction on a group of college students as compared with a group who received only comprehension training. Statistical analysis showed the experimental group did not improve significantly more than the control group. These results were interpreted as being the reflection of limitations in the experimental design.

GOMBERG, ADELINE W. "Freeing Children to Take a Chance," *Reading Teacher*, 29 (February 1976), 455-457.

Suggests the use of the cloze procedure as an excellent classroom technique for encouraging readers to seek meaning from a passage. Cloze tests were constructed using a selective deletion pattern which required the students to replace words according to their understanding of the author's purpose. Included in this article are a number of suggestions for classroom use of the cloze procedure as an encouragement to read for meaning.

GOVE, MARY K. "Using the Cloze Procedure in a First Grade Classroom," *Reading Teacher*, 29 (October 1975), 36-38.

Discusses various applications of the cloze procedure in the first grade classroom, noting the effectiveness of this procedure in helping young readers better understand language. Offers several specific suggestions for using cloze with beginning readers.

GRANT, PATRICIA L. "The Cloze Procedure as an Instructional Device," *Journal of Reading*, 22 (1979), 699-705.

Summarizes several of the major studies of cloze as an instructional device. There appears to be adequate evidence of its utility for teaching reading at virtually any grade level. The article concludes with a list of recommendations for the instructional use of cloze, synthesized from numerous studies.

JONGSMA, EUGENE. *The Cloze Procedure as a Teaching Technique*. Newark, Delaware: International Reading Association, 1971.

Summarizes the research related to cloze as a teaching instrument. This reference contains an extensive, critical review of the studies in the area. It identifies five common problems of past cloze research in teaching. Future directions for investigative work are suggested with particular reference to the difficulties encountered in earlier studies. Seven guidelines are noted for the reporting of cloze research. These suggestions should prove useful in the

documentation of future cloze experimentation. This is an important reference for those interested in applying cloze methodology to the classroom setting.

KENNEDY, DELORES. "The Cloze Procedure: Use It to Develop Comprehension Skills," *Instructor*, 84 (November 1974), 82, 84, 86.

Surveys the use of the cloze procedure in the classroom reading program, giving a brief discussion of the development of this technique and noting a number of specific ways it may be used by teachers. This reference is a good introduction to the cloze procedure and would probably be useful for inservice activities.

KENNEDY, DELORES K., and PAUL WEENER. "Visual and Auditory Training with the Cloze Procedure to Improve Reading and Listening Comprehension," *Reading Research Quarterly*, 8 (Summer 1973), 524-541.

Reports the results of an experiment in which below average third grade readers were given individual instruction using cloze materials. Significant effects of the training were observed, in particular for materials with a visual format. Authors conclude that cloze as a remedial aid deserves serious consideration.

RADICE, FRANCIS W. "Using the Cloze Procedure as a Teaching Technique," *English Language Teaching Journal*, 32 (April 1978), 201-204.

Notes the importance of the use of the cloze procedure as a valuable teaching aid in helping the teacher better understand reading behaviors in individual students and offers a number of useful suggestions for classroom implementation.

RYNDERS, PETER. "Use of the Cloze Procedure to Develop Comprehension Skill in the Intermediate Grades," unpublished doctoral dissertation, Syracuse University, 1971. *Dissertation Abstracts International*, 32 (1972), 5676A-5677A. University Microfilms No. 72-11863.

Compares the effectiveness of instructional cloze materials with that of materials consisting of unmutilated passages followed by inferential-level questions. Pre- and posttesting with the Gates-MacGinitie indicated that both types of materials were extremely effective—a mean gain of six months following a five week treatment interval. However, there was no significant difference between the two types. Subjects were 189 sixth graders.

THOMAS, KEITH J. "Instructional Applications of the Cloze Technique," *Reading World*, 18 (October 1978), 1-12.

Reviews the use of the cloze procedure in the classroom. This comprehensive survey includes numerous illustrations of specific applications of cloze to the classroom reading program. The author also discusses a possible format for cloze instruction which teachers might want to consider in planning reading lessons.

FOREIGN LANGUAGE APPLICATIONS

Use of the cloze procedure both to instruct and to assess students of second languages is a relatively recent application. Its two great advantages in this area are that students must both receive and produce foreign language elements to succeed at the task and that the need for comprehension questions, which may present new and undesired reading difficulties, is eliminated. The use of cloze in foreign language settings has increased and its potential in this area seems extraordinarily promising.

BINKLEY, JANET R. "Cloze Procedure in German for Teaching and Testing Reading at the Intermediate Level," unpublished doctoral dissertation, University of Kansas, 1974. *Dissertation Abstracts International*, 36 (1975), 677A-678A. University Microfilms No. 75-17573.

Compares cloze scores of American college students in intermediate German courses with their scores on the MLA Cooperative German Tests. Significant correlations from .589 to .891 were reported. The highest correlations occurred for the MLA test most appropriate for the students' levels, indicating the high flexibility of cloze. Further, higher correlations were obtained by combining pre- and postcloze scores. Neither the cloze nor the MLA scores showed significant correlations to three English language measures—Nelson-Denny, EPA, and ACT.

BRIERE, EUGENE J., GERHARD CLAUSING, DONNA SENKO, and EDWARD PINCELL. "A Look at Cloze Testing across Languages and Levels," *Modern Language Journal*, 62 (January/February 1978), 23-26.

Presents the results of a study designed to measure the ability of the cloze procedure to discriminate among learners of foreign languages by instructional levels. Cloze passages were constructed using materials written in German, Russian, Spanish, and Japanese and then given to native speakers of English at various levels of foreign language instruction. Results of this

study indicate that the cloze procedure is an effective measure in the categorizing of foreign language students.

DARNELL, DONALD K. "Clozentropy: A Procedure for Testing English Language Proficiency of Foreign Students," *Speech Monographs*, 37 (March 1970), 36-46.

Introduces a new method of using cloze to test ESL proficiency. In clozentropy, responses to cloze items are evaluated in terms of how frequently native speakers tend to supply the same responses. Several basic formulas from information theory are employed. In the results reported here, clozentropy scores correlated well with TOEFL scores (.838), listening comprehension scores (.736), vocabulary scores (.733), and reading comprehension scores (.614).

MEARA, PAUL. "Two Tests of Overall Ability in a Foreign Language," *Audiovisual Language Journal*, 12 (Winter 1975), 233-236.

Discusses the use of the cloze procedure as a viable alternative to objective measurement in determining a reader's understanding of a prose passage written in a foreign language. Specific suggestions are given for the use of cloze in the foreign language classroom.

OLLER, JOHN W., JR. "Scoring Methods and Difficulty Levels for Cloze Tests of Proficiency in English as a Second Language," *Modern Language Journal*, 56 (March 1972), 151-158.

Reports the results of a study investigating the effectiveness of the cloze procedure with students who use English as a second language. The cloze tests developed for this project were constructed using text material written at various levels of difficulty and then scored by five different methods. Of these scoring procedures, allowing any contextually acceptable response produced the best results.

OLLER, JOHN W., JR. "Cloze Tests of Second Language Proficiency and What They Measure," *Language Learning*, 23 (June 1973), 105-118.

Extensive discussion of the use of cloze as a test of ESL proficiency, including review of literature, identification of needed research, and treatment of the general issue of validity.

OLLER, JOHN W., JR. *Research with Cloze Procedure in Measuring the Proficiency of Nonnative Speakers of English: An Annotated Bibliography*, 1975. Eric Document Reproduction Service No. ED 104 154.

Includes over 100 annotated references to the use of the cloze procedure with nonnative speakers of English. This comprehensive review of cloze research

should be especially helpful to teachers of students learning English as a second language as well as to researchers in the area of bilingual education.

OLLER, JOHN W., JR., and CHRISTINE A. CONRAD. "The Cloze Technique and ESL Proficiency," *Language Learning*, 21 (December 1971), 183-195.

Discusses rationale for the use of cloze as a test of ESL proficiency. A correlational study designed to establish its usefulness is reported. For a large group of ESL subjects representing 27 languages, an overall correlation of .80 was observed between cloze scores and comprehension test scores. Cloze appears to be a highly promising technique for ESL testing.

CLOZE AND MAZE

Guthrie's maze procedure presents the reader not with blanks but with vertically arranged choices periodically embedded in the text. It therefore constitutes a multiple-choice cloze format in which the student must continually choose the one sensible path through a verbal "maze."

Actually, cloze and maze are logical opposites. In cloze, graphic information is removed from the passage; in maze, it is added. Thus, while cloze is a task of recall, maze is one of recognition. This relationship makes maze a particularly valuable process for better understanding cloze, and also increases its own value in both assessment and instruction.

Because of its recent advent, maze has not yet occasioned a large number of studies. Nearly all of those available at this writing are included here.

BRADLEY, JOHN, GARY ACKERSON, and WILBUR AMES. "The Reliability of the Maze Procedure for Classroom Assessment," *Journal of Reading Behavior*, 10 (Fall 1978), 291-296.

Reports good reliability among alternate-form maze tests constructed by different teachers. Specific, uniform instructions for constructing the tests were given to each teacher. Subjects were second grade students.

BRADLEY, JOHN, and KEITH MEREDITH. "The Reliability of the Maze Procedure for Intermediate and Junior High School Students," in P. David Pearson and Jane Hansen (Eds.), *Reading: Disciplined Inquiry in Process and Practice*, Twenty-Seventh Yearbook of the National Reading Conference. Clemson, South Carolina: National Reading Conference, 1978.

Reports results suggesting that maze may be inappropriate for assessment at the intermediate and junior high levels, at least 1) in its typical format and 2) when total number of correct responses is to be used in diagnosis.

FEELY, THEODORE M., JR. "How to Match Reading Materials to Student Reading Levels: II. The Cloze and the Maze," *Social Studies*, 66 (November/December 1975), 252-258.

Compares relative strengths and weaknesses of the two techniques in terms of constructing, administering, responding, and scoring.

GUTHRIE, JOHN T. "Reading Comprehension and Syntactic Responses in Good and Poor Readers," *Journal of Educational Psychology*, 65 (December 1973), 294-300.

Introduces the maze procedure as a technique for measuring reading comprehension.

GUTHRIE, JOHN, MARY SEIFERT, NANCY A BURNHAM, and ROBERT I. CAPLON. "The Maze Technique to Assess, Monitor Reading Comprehension," *Reading Teacher*, 28 (November 1974), 161-168.

Suggests guidelines for constructing maze tests and for scoring and interpreting results.

PIKULSKI, JOHN J., and EDNA C. PIKULSKI. "Cloze, Maze, and Teacher Judgment," *Reading Teacher*, 30 (April 1977), 766-770.

Compares results obtained from two forms of cloze tests with teacher judgment in establishing independent, instructional, and frustration reading levels. Findings indicate that cloze may tend to place students at a higher level than does teacher judgment. The authors suggest cloze as a measure of reading ability with groups but caution against its indiscriminate use with individual readers.

WISEMAN, DONNA, and MICHAEL McKENNA. "Classroom Uses of the Maze Procedure," in *Selected Articles on the Teaching of Reading*, Set C. No. 50. New York: Barnell Loft, 1978.

Discusses issues related to maze testing, compares the maze and cloze tests, and suggests avenues of future research in maze.

41